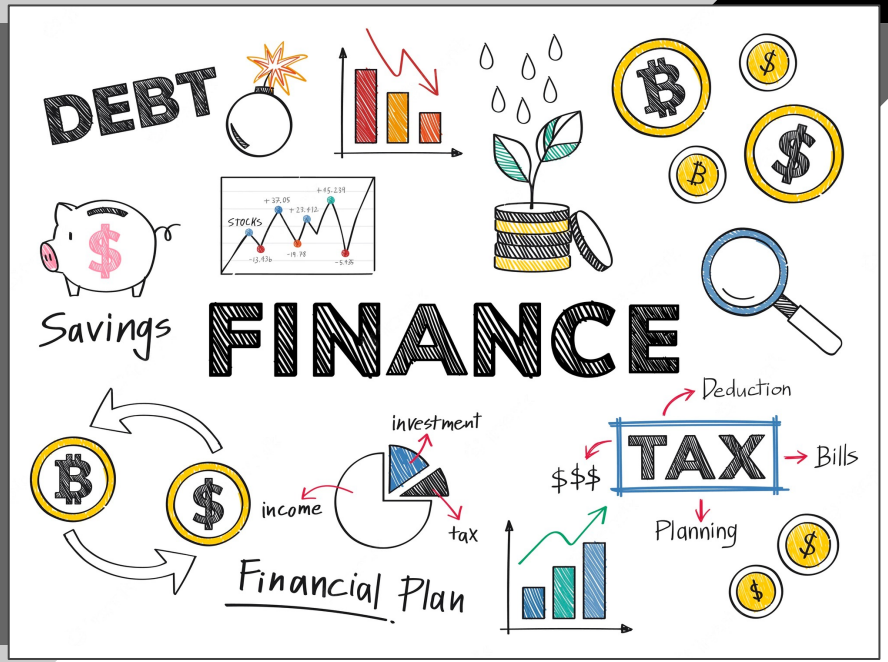
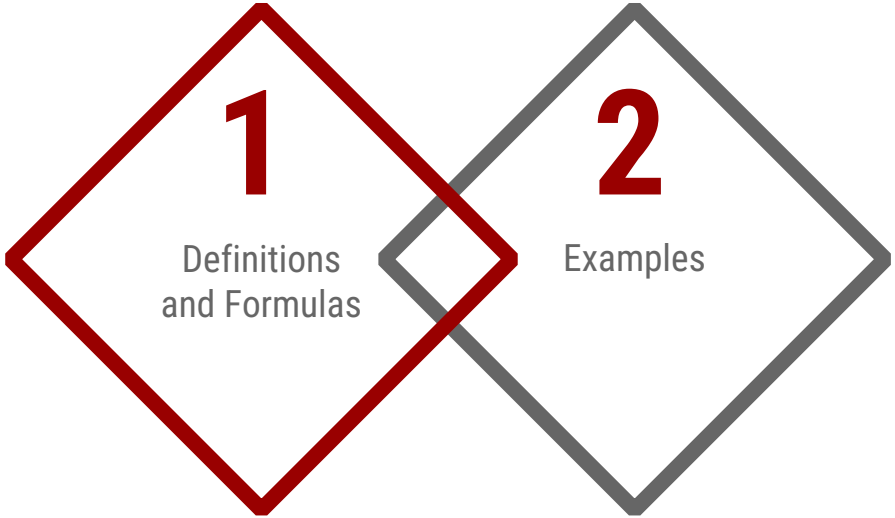
9.1 Understanding Personal Finance



Goals for the Day



1

Definitions and Formulas

Net Income

- **Net Income (take home pay)** is equal to total, or gross, income minus taxes.
  - *Net Income = Gross Income – Taxes*
- Example: Hannah makes $45,000 per year and expects to pay approximately 20% for all taxes.

a) How much of her income can Hannah expect to pay in taxes?

$$Taxes = Salary \times Tax\ rate = 45{,}000 \times \frac{20}{100} = \$9000$$

b) What is Hannah's net income?

$$Net\ Income = Salary - Taxes = 45{,}000 - 9{,}000 = \$36{,}000$$

c) What is Hannah's monthly take-home pay?

$$Monthly\ Take\ Home\ Pay = \frac{Net\ income}{12} = \frac{36000}{12} = \$3{,}000$$

Disposable Income

- **Disposable income** is the money left over after taxes and expenses.
  - *Disposable income = Net income – Expenses*

List Price

- **List price** is the price of an item as it is listed for public sale.
  - *Total price = List price + Taxes*
  - *(New price = Original + Increase)*

- Example: At a restaurant, your total bill was $70. If you tip 15%, what is the total bill including tip?

$$Taxes = Original + Tip$$

$$= 70 + \frac{15}{100}(70) = 70 + 10.50 = \$80.50$$

$\frac{15}{100}$ → 0.15

Discount and Sale Price

- **Discount** is the reduction from the list price. This is usually given as a percentage of the list price.
  - *Discount $ = List price x (Discount % / 100)*
- **Sale Price** is the actual cost of an item after a discount
  - *Sale price = List price – Discount*
  - *(New price = Original – Decrease)*

Discount Example

Example

a) A new computer is listed at $899 but is on sale for 20% off. What is the sale price (before taxes)?

$$Sale\ Price = List\ Price - Discount$$

$$= 899 - 0.20(899) = 899 - 179.80 = \$719.20$$

20% of 899

Discount Example

Example

b) Evan bought a gaming system on sale for $198.45. The list price of the system was $330.75. What was the (approximate) percentage discount?

Discount $

$$Sale\ Price = List\ Price - Discount$$

$$198.45 = 330.75 - Discount$$

$$-132.30 = -Discount$$

$$Discount = 132.30$$

Discount %

$$Discount = 132.30$$

$$x\%\ of\ 330.75 = 132.30$$

$$330.75x = 132.30$$

$$x = 0.4$$

$$Discount = 40\%$$

Percentage Change

- Change (absolute change) = *New value – Reference (Original) value*
  - *Ex) Bought a snowboard for $20, sold it for $30*
  - *Change = $30 - $20 = $10 increase*

- Percentage change (relative change)

$$Percentage\ Change = \frac{New\ Value - Reference\ Value}{Reference\ Value} * 100$$

Ex) $\frac{\$30-\$20}{\$20} \times 100 = 50\%$ increase

Percentage Change

Example

Original (old value)

Two years ago, Maci bought an iPad for $499. After the release of the newer iPad, the iPad that Maci bought could be purchased for $350. What is the approximate percent change in the cost of the iPad?

New value

$$Percentage\ Change = \frac{350 - 499}{499} * 100 \approx -29.86\%$$

decrease

2

Examples

Example #1

Luis found a receipt for a pair of sunglasses for $127.18, tax included. If the sales tax rate was 6%, what was the list price of the sunglasses? Round your answer to the nearest cent.

$119.98

Example #2

During the last year, the value of your house decreased by 30%. If the value of your house is $194,000 today, what was the value of your house last year? Round your answer to the nearest cent, if necessary.

$277,142.86

Example #3

The value of your stock investment decreased by 28% after a stock market crash. What percentage increase in value would the stocks have to rise in order to return to the value they were before the stock market crash? Round your answer to the nearest tenth of a percent.

38.9%